

**The Secretary of Defense Performance-Based Logistics Awards Program  
For  
Excellence in Performance-Based Logistics  
In  
Life Cycle Product Support**

**Section 2  
Summary of Criteria Accomplishments**

**Improvements in Warfighter-Based Capabilities and Outcomes**

**Mission Success:** Two performance-based contracts, the F414 Depot Components Support (DCS) PBL and the F414 Fleet Support (FS) PBL combine to provide coverage for all F414 engine material managed by NAVSUP Weapon Systems Support (NAVSUP WSS). In 2003, Naval Air Systems Command (NAVAIR) charged NAVSUP WSS with execution of the F414 engine support strategy via Partnership PBLs. NAVSUP WSS further refined the NAVAIR F414 PBL plan to include the remanufacture or replacement of engine Aviation Depot Level Repairable (AVDLR) components using a General Electric (GE)/Fleet Readiness Center Southeast (FRCSE) partnership, vice transacting engine or engine module assemblies. This reduced the Navy's up-front logistic pipeline investment requirement while delivering other advantages of a partnership PBL: reduced customer wait time, reduced repair turn time, less work-in-process (WIP), less infrastructure investment, and a smaller material pipeline.

Two F414 engines power the Navy's F/A-18 E and F and EA-18G series aircraft. 557 F/A-18 Super Hornet aircraft and 1,210 F414 engines are currently in Navy inventory.

The F414 DCS PBL supplies the Navy's requirement by providing remanufacture or replacement, as needed, of seventeen Critical Safety Items (CSI) which are internal AVDLR components of the F414 turbine engine. The F414 FS PBL delivers supply support for over 900 line items of repairable and consumable components to all levels of maintenance. [See Figure 1 schematic.]

Mission outcomes are exceptional under the program. A sample of the qualitative and quantitative benefits and improvements are outlined in the sections below.

**Materiel Availability:** The contractual material availability metric for the F414 DCS PBL is 85% delivery in 2 days for Issue Priority Group (IPG1) requisitions; 85% delivery in 3 days for IPG2 requisitions; and 85% delivery in 10 days for IPG3 requisitions. Current overall performance averages 98.7% across all priorities. GE is incentivized for deliveries up to 90% but receives no additional payments for performance above 90%. The metric for the FS PBL is 80% delivery in 2 days and 100% delivery in 4 days for IPG1 requisitions; and 80% delivery in 10 days and 100% delivery in 60 days for IPG2/3 requisitions. Current performance is 95% or above in all categories. On this PBL, GE is incentivized for deliveries up to 85% but receives no additional payments for performance above 85%.

The coverage of Fleet requirements provided by the PBLs is extensive. The DCS PBL satisfies over 3,000 annual demands from the depot at FRCSE; the FS PBL fills approximately 100,000 requisitions from all its customers every year.

The FS PBL is currently in its second follow-on period of performance; the DCS PBL is in its first follow-on period of performance. Contractual material availability metrics are analyzed and adjusted after each PBL to ensure that they are properly aligned with Fleet requirements and properly drive GE behavior.

**Materiel Reliability:** The PBL strategy drives significant improvements in engine component durability and time on wing. Turbofan engines like the F414 are made up of components and parts that wear out with use. These components and parts have “life limits” that require engine removal and module disassembly for AVDLR inspection and replacement as required at specified engine hours of usage. The PBL partnerships incentivize government and industry engineering improvements and matching of life limited components as engines are repaired at the depot. Mean Engine Flight Hours Between Removal (MEFHBR) for the F414 is currently at 608 hours vice 400 hours at the beginning of the program. The improved longevity results in reduced demand for

AVDLRs, reduced weapon downtime, reduced maintenance turn time, and reduced investment in F414 spare engines and modules.

#### **Sustainment Strategy Effectiveness/Efficiency**

**Operating & Support Cost Reduction:** The most recent F414 FS PBL contract was awarded to GE in July 2011 for \$486.6M; it has a four-year firm-fixed price base and is the second renewal of the PBL. Documented savings from the Business Case Analysis (BCA) total \$53.7M over the four years of the contract. The most recent DCS PBL contract was awarded to GE in January 2011 for \$576.0M; it has a three-year firm-fixed price base and is the first renewal of the PBL. Documented savings from the Business Case Analysis (BCA) total \$56.5M over the three years of the contract. In both cases, these “hard” savings are direct reductions to the Fleet Flying Hour Program (FHP) budget over the period of performance.

In addition, F414 PBL demand variation contract language specifies that the contract remains at the negotiated fixed annual price of performance so long as actual annual demand stays within a “dead” band of 105% to 90% of the Navy’s demand forecast stated in the contract. If the Contractor suppresses annual demand below 90% of forecast, the Navy generates a credit at the fixed unit price of demand (UPD) outside of the “dead” band specified in the contract. The Navy shares in performance cost avoidance taken as a contract price reduction related to demand suppression.

Because the F414 PBLs deliver more durable components and just in time material support to the Fleet operator, the Navy currently sets the sparing profile of the F/A-18 Super Hornet Program engine at 7% as compared to 16% or higher sparing profiles required for comparable augmented engines not having PBL support. At the current F414 Program Engine Readiness Goal (ERG) of 1,081 engines this allows the Navy to avoid acquiring and maintaining 97 additional spare engines. At a current F414 replacement price of \$3.9M each, the current F414 PBL support strategy allows the Navy to avoid the acquisition of \$378M in spare engines/modules.



**Public-Private Partnering:** Public-Private Partnering is a key enabler in the success of the F414 program. Teaming between government and industry enables sharing of best practices between GE and FRCSE. These efforts lead to more effective and affordable support through reduced costs and improved engine piece part and component availability. Through jointly conducted process improvement projects, depot induction times are streamlined, WIP is reduced, awaiting parts problems are virtually eliminated, and repair capability and practices are improved, resulting in significantly reduced repair cycle times.

**Systems Engineering Approach:** Enhanced program warning indicators are established under the PBL program. Program level “dashboards” and “module playbooks” and material “watch lists” are analyzed to ensure availability outcomes. The Enterprise Dashboard combines Navy and GE information on engine removals, total Ready-For-Issue (RFI) engines, Fleet module pools, engine age distribution, inventories on hand, and other advanced warning indicators to successfully manage material streams and demand variation to meet readiness goals.

**Footprint Reduction:** The F414 PBL strategy allowed the Navy to avoid I-1 maintenance level stand-up thereby avoiding \$35M in specialized tooling acquisition during FY 2006-2012. The F414 PBLs allow the F/A-18 Program to operate successfully with a lean F414 engine/module inventory and streamlined maintenance infrastructure, avoiding one-time acquisition costs of \$413M (spare engines/modules plus tooling) as compared to a legacy organic support strategy at the current ERG goal. And as ERG grows with the size of the F/A-18 Super Hornet fleet, so too does the PBL related cost avoidance.

**Obsolescence Management:** GE is responsible for obsolescence management on the program. The contractor manages all obsolescence as it relates to contractor furnished material supplied in support of commercial repair activity; obsolescence issues cannot be used as grounds for equitable adjustments or relief from contract metrics or delivery schedule. GE is thereby incentivized to

proactively address obsolescence through qualification of new sources, lifetime buys, and material/component design changes.

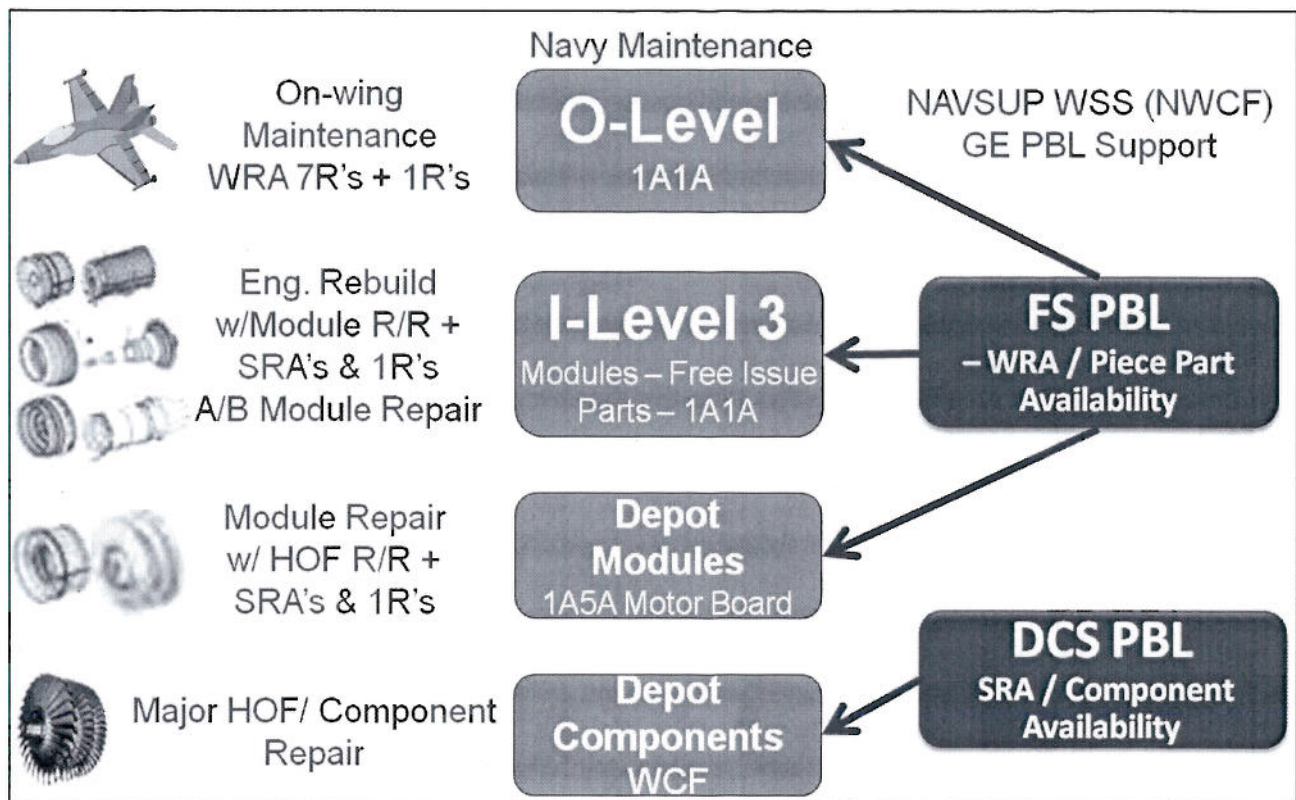
**Innovative Contracting Support Approach:** The NAVSUP WSS F414 PBL's are firm fixed price, demand based, requirements type, supply contracts. This means the scope of contracted effort is acquired and priced in terms of Navy customer requisition fulfillment count (demand for AVDLRs). The PBL contract baseline is an independently developed Navy demand forecast for the each period of performance. The contract terms specify that the Government will pass all requirements to the Contractor and that the Contractor must fill all requisitions received during the contract term.

Contracting for an indefinite requirement (all customer requisitions) at a fixed price provides the Contractor an opportunity to drive product improvement and price reductions by delivering more durable parts and/or operating a leaner logistics support process. F414 PBL contracts awarded to date have delivered more durable parts and operate successfully with less pipeline investment, less WIP, and less inventory than comparable non-PBL supported engine programs. The fixed price PBL contract is structured so that the Contractor and the NAVSUP WSS share the NWCF contract price reductions resulting from product durability improvements and leaner logistics pipelines, while the Navy's F/A-18 Program receives 100% of the APN/OM&N cost avoidance delivered by more durable F414 engines and a lean logistics support strategy.

Each contract also includes exit provisions designed to ensure that the Navy receives all assets and data necessary to provide support to the Fleet through traditional means should the PBL be ended for any reason.

The F414 PBLs are clearly focused on the desired outcomes of DoD Acquisition Reform guidance. The BCA ensures affordability and the firm-fixed price contract controls cost growth. PBL metrics incentivize GE innovation and productivity; the PBL structure maximizes use of and maintains existing Navy infrastructure and expertise.

**Figure 1: The F414 PBL Support Model**



Notes: 7R = NAVSUP WSS-managed repairables; 1R = NAVSUP WSS-managed consumables; R/R = Remove and Replace; WRA = Weapons Replaceable Assembly; SRA = Shop Replaceable Assembly; HOF = Head of Family



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**Section 4  
Achievements**

The F414 PBL team has set the benchmark for performance based engine support. The team's efforts have supported award of five contracts, original and renewal, significantly enhancing support to the F414. The dollar value of the current Depot Components Support (DCS) PBL and Fleet Support (FS) contracts totals \$1.1B. The PBLs support 1,210 engines in Navy inventory. The proactive approach fostered by PBL delivers over \$110.2M in direct savings to the Fleet Flying Hour Program (FHP) tied to the two current contracts and has driven substantial infrastructure cost avoidances. Material availability is over 95% for all requirement categories. The firm-fixed price PBL contracts incentivize GE to make investments and support decisions that pay off over the long-term through improved parts support, improved time-on-wing, optimized depot processes, and decreased depot returns. The GE/FRCSE partnership brings government/industry best practices to the supply chain and proactively manages readiness goals. GE brings its in-depth knowledge of the F414 engine to sustainment support and integrates that knowledge within existing infrastructure in coordination with Navy members of the PBL team. The F414 PBLs are clearly focused on the desired outcomes of DoD Acquisition Reform and Better Buying Power 2.0 guidance. The BCA ensures affordability and the firm-fixed price contract controls cost growth. PBL metrics incentivize GE innovation and productivity; the PBL partnership structure maximizes use of and maintains existing Navy infrastructure and expertise. The F414 PBL provides unprecedented cost-wise performance to the Fleet.